## EXHIBIT 23

### CORNELL CHRONICLE

# After free lunch from drug firms, doctors increase prescriptions

By James Dean | February 17, 2020

Doctors prescribe more branded medications after marketing visits by the makers of those drugs, new research co-authored by a Cornell economist confirms.

But while the 4% average monthly increase in sales of those drugs in the year following such marketing represents a substantial return on investment, it is well below what some previous studies have suggested, said Colleen Carey (https://www.human.cornell.edu/people/cmc528), assistant professor of policy analysis and management in the College of Human Ecology.

Additionally, the study found that drug firms' "detailing" visits – a controversial practice involving in-kind payments to doctors, commonly meals – does not lead them to prescribe higher-quality drugs, as industry advocates have argued.

"We took seriously the claim that there is educational value to these marketing encounters," Carey said. "We just don't find any evidence for it."

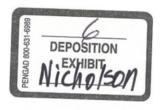
Carey is the author, with Ethan Lieber of the University of Notre Dame and Sarah Miller of the University of Michigan, of "Drug Firms' Payments and Physicians' Prescribing Behavior in Medicare Part D (https://www.nber.org/papers/w26751.pdf)," released Feb. 17 as a working paper by National Bureau of Economic Research.

Leveraging new data and an improved study design, the paper is the first to track doctors' prescribing behavior before and after payments related to all drugs, not just a single drug or class of drugs. It also accounted for which doctors were already likely to prescribe these medications based on their patient mix, and therefore be targeted for detailing.

The analysis showed that doctors shared similar prescribing trends before any payments occurred. But in the month after receiving a payment, doctors increased the number of patients taking the drug marketed to them.

"We overcame a bunch of empirical challenges to establish that the payments have a causal impact on prescribing," Carey said.

The study examined drug prescribing between 2013 and 2015 for a large sample of enrollees in Medicare Part D, a federal program that subsidizes prescriptions for 37 million senior and disabled Americans, and accounts for nearly one-third of U.S. retail prescription drug sales.



That information was linked to Open Payments, a database started in 2013 under the Affordable Care Act that required pharmaceutical companies to report monetary or in-kind payments to doctors, including meals, travel, speaking engagements or continuing education expenses.

In general, those payments were not lavish -95% were meals, of which 80% were valued at less than \$20, according to the study.

But they were commonplace, and achieved results. Offering the most comprehensive estimate of its kind, the study found that more than 20% of Medicare Part D expenses on branded medications resulted from doctors who received a payment related to a drug they prescribed. Nearly 30% of Part D physicians were paid for at least one drug they prescribed during the sample period.

"The prevalence of the practice implies that the financial impacts are economically large," the researchers wrote.

The researchers estimated that for every additional dollar spent on detailing visits, drug firms could expect to reap \$2.64 in increased drug revenue over the next year – a 164% return on investment. Previous estimates were much higher, ranging from 200% to 1,700%, according to the study.

It's easy, Carey said, to see why detailing – now banned by some academic medical centers – is a good investment: The visits are cheap, and the drugs are expensive.

"You don't need a big behavior change for these visits to make economic sense for the drug firms," she said. "For a lot of these drugs, if you get the doctor to prescribe it once more over the next year, you would have broken even."

To assess whether payments led to better treatment, the researchers collected data on the clinical trial efficacy of each drug for three major classes of drugs with agreed-upon endpoints for treatment related to blood pressure, cholesterol and mental health. Drug firms commonly discuss clinical trial results during marketing encounters, so the researchers investigated whether doctors begin to prescribe drugs with higher efficacy after the visits.

They found the quality of drugs prescribed after payments actually fell, but the drop was too small to be clinically meaningful.

Overall, doctors' interactions with drug firm sales representatives increased firm revenues, but the study did not find that they improved prescribing quality.

"We do not find clear evidence that such payments are harmful to patients," the researchers concluded, "only that they do not seem to be obviously helpful."

Financial support for the study came from the Robert Wood Johnson Foundation.

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